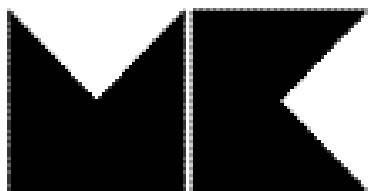


S-150P THX

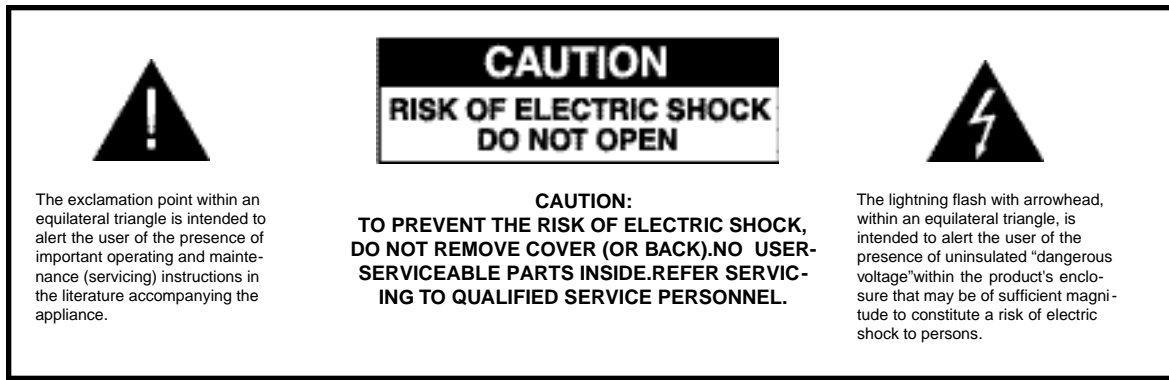
operation manual



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Foreign patents pending. Lucasfilm and THX are registered
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1. Safety Instructions

1. - All safety and operating instructions should be read before this product is operated.
2. - The safety and operating instructions should be retained for future reference.
3. - All warnings on this product and in the operating instructions should be adhered to.
- 4.- All operating and use instructions should be followed.
- 5.- Do not use attachments not recommended by the product manufacturer as they may cause hazards.
- 6.- Do not use this product near water - for example, near a bathtub, washbowl, kitchen sink, or laundry tub;in a wet basement; or near a swimming pool; and the like.
- 7.- Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product.Use only with accessories recommended by the manufacturer, or sold with the product.Any mounting of the product should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.
8. - This product should be operated only from the type of power source indicated on the marking label. If you are unsure of the type of power supply to your home, consult your product dealer or local power company.
9. - Do not overload wall outlets or extension cords as this can result in a risk of fire or electric shock.
10. - Never spill any liquid of any kind on the product.
11. - Do not attempt to service this product yourself. Opening or removing covers, including any over bottom or side speaker drivers, may expose you to dangerous voltage or other hazards. Refer all service to qualified service personnel.
12. - Unplug this product from the wall outlet and refer servicing to qualified personnel under the following conditions:
 - When the power-supply cord or plug is damaged.
 - If liquid has been spilled, or objects have fallen into this product.
 - If the product does not operate normally by following the operating instructions. Adjust only controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - If the product has been dropped or damaged in any way.
 - When the product exhibits a distinct change in performance - this indicates a need for service.
13. - When replacement parts are required be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part.Unauthorized substitutions may result in risk of fire, electric shock, or other hazard.
14. - Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
15. - This product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

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2. Introduction

Congratulations! Your new M&K THX speaker will give you years of unmatched enjoyment and excitement while listening to your favorite musical and audio/video sources.

We strongly encourage you to read this owner's manual, as there is a great deal of information provided here to help you get the best possible performance.

If you have any questions regarding any Miller & Kreisel products, please contact your M&K dealer, or call the M&K factory directly at (818) 701-7010, from 8:30 AM to 5:00 PM Pacific Time. We will be more than happy to help you with any question, no matter how simple or complex it may be. Additional information may also be found on our website www.mksound.com or email us at support@mksound.com.

This manual gives you basic hook-up instructions first, followed by more detailed technical, installation and service information.

3. The Home THX Audio Speaker System

Your choice of an M&K Home THX Audio speaker system assures you of achieving the state of the art in home theatre music and video reproduction. The precise and exacting standards developed by Lucasfilm's Home THX division assure that you will hear every element of film sound — from the softest brush of an object against an actor's clothing to the awesome impact of effects such as an exploding planet — with the same sonic quality heard by the film's director and sound designer as they created the final mix of sound on the studio's dubbing stage.

To do this in a home environment requires different equipment and standards than are found in a THX motion picture theatre. The standards developed for Home THX Audio are critically important to achieving the following performance attributes:

- wide frequency range, extending to the limits of audibility
- smooth, naturally balanced overall sound
- excellent dialog intelligibility
- wide dynamic range with extremely low distortion
- well-matched timbre (tonal balance) between front speakers and surrounds
- precise localization of specific sounds (as in special effects)
- envelopment by ambient soundfield (without any localization of individual speakers to distract from the action on-screen)
- superb performance with musical sources

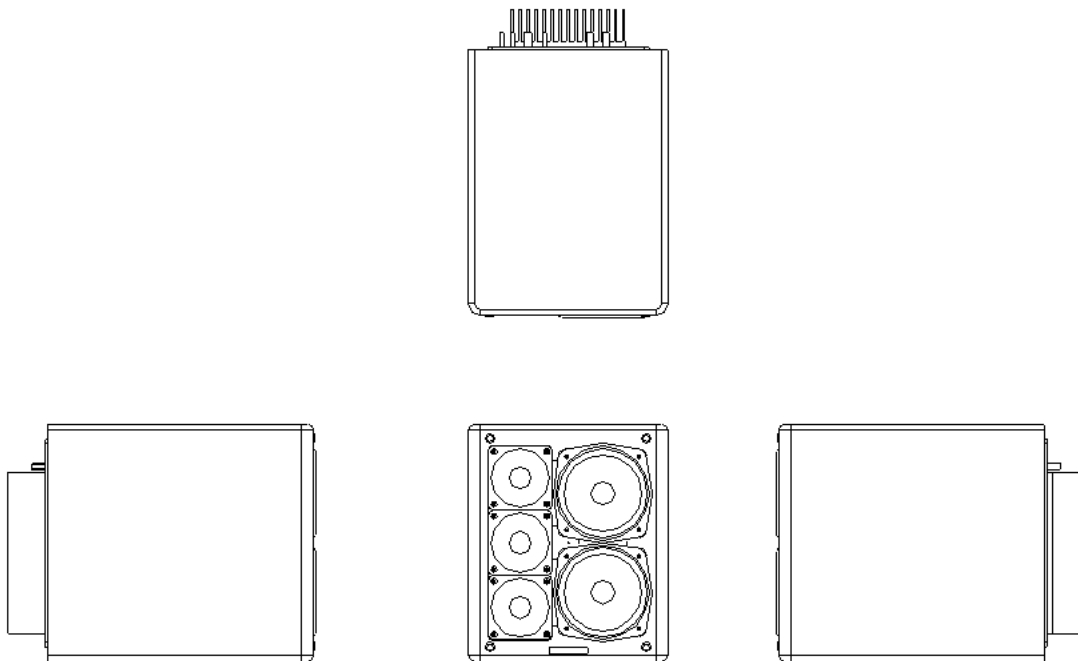
The unsurpassed quality of your M&K Home THX Audio speaker system means that all of the excitement and emotional involvement of films and music will be brought to life in your home. Turn down the lights, and let the experience begin!

4. Quick Product Overview

The S-150P THX is a bi-amplified THX certified reference monitor. The S-150P features a 180-watt x 2 amplifier with improves on the standard S-150 THX in sound quality, wider dynamic range and higher output, due to the elimination of signal losses that occur when high-level signals pass through a passive crossover network.

In addition to using an active crossover, the S-150P THX also offers several setup configurations for increased flexibility. These include:

- Switchable vertical directivity control - Narrow and Wide mode (See Section 6)
- Switchable 80Hz High-Pass filter - On and Off (this switch should be in the off position when using an LFE-4 or other Bass-Management Electronics)
- Fully adjustable gain - to max gain (200mv delivered to the balanced input stage delivers 90dB of acoustic output at one meter)
- Fixed gain switch position equal to max gain (200mv delivered to the balanced input stage, delivers 90dB of acoustic output at one meter)



5. Speaker Placement

When the S-150P is used as a front loudspeaker it should be located with the center tweeter at seated ear height. If this is not possible the S-150P must be aimed at seated ear height at the center of the primary seating/monitoring location so as to cover the listening area uniformly with high frequency energy.

The S-150P is provided in LEFT and RIGHT versions. They are identified by the location of the tweeters when the speaker is viewed from the front. The LEFT speaker has the tweeters located on the left side of the front baffle and the RIGHT speaker has the tweeters on the right side.

Either version can be used as the center channel.

6. Narrow / Wide Mode

After final aiming of the loudspeaker system has been completed, smooth front to back coverage should be confirmed throughout the monitoring area. In the narrow mode (THX recommended), the S-150P will minimize floor and ceiling reflections, providing smoother horizontal on and off axis frequency response. When multiple rows of seats need to be covered, or the monitoring area is larger than the Narrow Mode will cover, it is recommended that the S-150P be used in its Wide Mode. This mode widens the vertical coverage angle, but also makes the speaker more susceptible to room boundary interference. Determining which mode best suits your monitoring condition might require some experimentation.

7. Optimizing Speaker Location

The sound quality produced by your speakers can be significantly enhanced by careful attention to their placement. While we understand that you may not redesign your room to accommodate your speakers, coming as close as possible to the ideal placement will give you much better sound.

Four factors are important in getting the best sound. They are:

- A. Height (or angle).
- B. Location away from room walls or reflecting surfaces.
- C. Separation between Left and Right speakers.
- D. Vertical orientation of the speaker cabinets

A. HEIGHT (OR ANGLE)

Your M&K speakers will always deliver sound superior to conventional speakers, regardless of where you locate them. However, because they are designed for very fast and accurate transient response, they achieve even better sound quality, and the flattest frequency response when properly oriented relative to your ear. Ideally, the tweeters should be at the same height from the floor as your ears, when you are sitting in your main listening position. If you have the speakers mounted above or below this height, they sound their best when you angle the speakers so that the tweeters are aimed at your ears when you are in the main listening position.

A red LED has been mounted on the center axis of the speaker. This LED can be used as an alignment tool for final aiming of the loudspeakers and indicates perfect on axis alignment when the LED is at its brightest.

Another way to determine the proper angle is to have a helper move the speakers while you sit and listen. You should be able to hear the difference when the speakers are in the best location by listening for the brightest high frequencies and for the best “focus” of sound, where you hear the sharpest sonic imaging of voices and instruments. To do this, just play a pink or white noise. When the speakers are aimed properly, you will hear the greatest amount of high frequencies. You will be able to hear a distinct differences in the highs when each speaker is at the correct angle.

B. LOCATION AWAY FROM REFLECTING SURFACES

Your speakers should be located, whenever practical, away from walls, the floor, furniture, or any other reflecting surfaces. Do the best you can. Objects close to the speaker will reflect sound, and this reflected sound arrives at your ear slightly later than the direct sound, which blurs sonic imaging and makes transients seem muted. The delay is very slight, so instead of hearing an echo, you hear a "blurred" sound with less clarity that is not as sharp and distinct as it should be. This time delay also affects frequency response and sonic imaging.

Bear in mind, however, that while many satellite speakers do not perform well when placed on the floor, the S-150P is designed to deliver good performance whether sitting on the floor or mounted above it.

If the speakers are on a television set or shelves, locate them on the front edge, so there is no flat surface directly in front of them. If the speakers will sit close to walls or other large objects, leave as much space as possible between the speaker and the object. Ideally, your speakers will be several feet from the nearest surface, but in most rooms compromise is necessary.

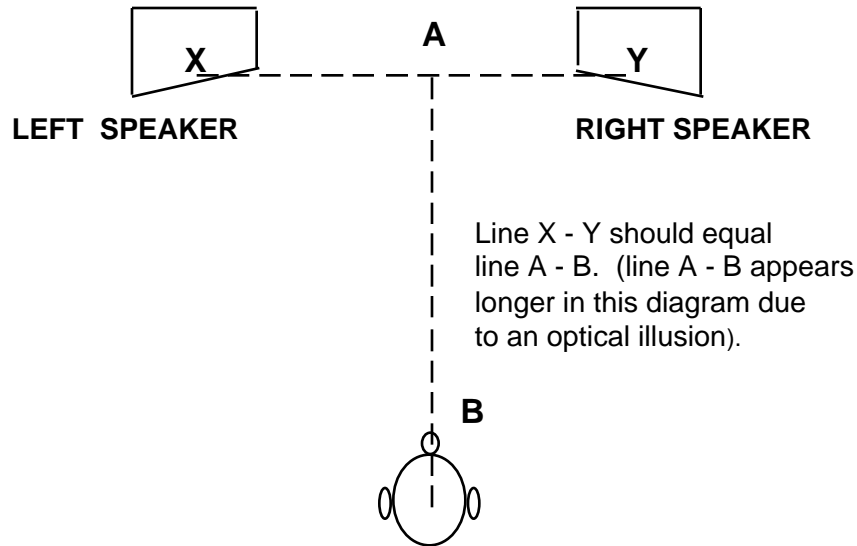
Wherever you decide to place your S-150P speaker, you must allow room for ventilation of its heatsink and backplate. The speaker's power amplifier is mounted on the backplate, and it generates heat. Therefore:

- 1. Do not place the speaker against a wall. Leave at least 3 inches of clearance for the heatsink.**
- 2. Do not place the speaker close to baseboard heaters or forced air heating outlets.**

C. SEPARATION BETWEEN LEFT AND RIGHT SPEAKERS

Here is a formula for achieving the ideal left to right stereo imaging. Think of a triangle formed by the locations of the Left and Right speakers and your listening position. Ideally, the subtended angle formed should be between 45 and 50 degrees. Roughly, this means that the Left and Right speakers should be separated by about the same distance that you are sitting back from the speakers. In other words, if the distance from your listening position to the point directly between the speakers is 10 feet, place the speakers so their centers are 10 feet apart. See Figure 1 on page 8.

FIGURE 1



On Figure 2, the length of line A - B should be about the same as the length of line X - Y. (They may not seem to be the same in this diagram due to an optical illusion). Try to follow the formula as close as you can. You can fine tune the placement by listening to a source with an image (such as a vocalist) centered between the speakers. When listening in stereo (no Center Channel speaker), move the speakers closer together or farther apart in small increments until you hear the sharpest and most cohesive image, especially in the phantom center. You may also want to angle (or "toe-in") the speakers slightly. This often improves the sharpness of the stereo image, reduces room colorations, and provides a wider seating area. The angled front baffles of your speakers also provide this benefit.

D. VERTICAL ORIENTATION

The Performance of your speakers is dependent on their orientation. THX speakers are designed for controlled vertical dispersion and wide horizontal dispersion. By controlling the vertical dispersion, we limit the amount of sound that would otherwise be reflected with a time delay from the floor and ceiling (for reasons discussed in B above).

This means the speakers should always be vertically oriented. The S-150P is vertically oriented with its tweeters are vertically stacked (not next to each other). When vertical, the controlled dispersion is in the correct plane. If they are oriented horizontally (on their sides), listeners right and left of a direct line from the center of the speaker will hear a compromised sound quality, an irregular frequency response, as well as some other problems. While this may be acceptable for background listening, we strongly recommend that you do not place them on their sides for any other listening. S-150P must be oriented vertically (tweeters in a vertical line) to meet THX requirements.

8. THX Audio System

If your M&K speakers are being used in a Home THX Audio system, placement is very important. You should take at least the same amount of time and care in setting up your M&K Home THX speakers as you would with the most exotic high-end stereo system. Some listeners

make the mistake of taking too casual an approach to the installation of the speakers in a home theatre system. In fact, in many ways, the setup of the speakers in a home theatre is more critical than for stereo. Even though the S-150P is less influenced by the room environment than most other speakers, the time you spend in carefully installing yours will significantly enhance your enjoyment of these speakers.

The LEFT, CENTER, and RIGHT speakers should ideally all be at the same height as the viewing screen. Because the CENTER channel speaker cannot cover the screen, it will have to be above or below the screen. Try to set up all three speakers at the same height. If this is not practical, set them up so that they are aimed directly at the listening position. Your speakers have great flexibility when used in combination with M&K stands or mounting brackets.

If the speakers are located behind an acoustically transparent picture screen, it is recommended by THX that they be placed $\frac{5}{8}$ the height of the picture screen. Placing the speakers in this manner will ensure that sound elements relate best to the image. When behind a transparent screen, the speakers should be angled slightly so that the front baffles are not parallel to the screen. This will optimize the sound quality. The front speakers should be at an equal height, or ideally no more than 2 feet difference.

The LEFT and RIGHT speakers should be oriented with the tweeters stacked vertically and mounted towards the outside. The S-150P should be placed in such a way as to minimize boundary interference. For the best low frequency match between speakers we recommend the speakers be placed a minimum of 3 feet (or 1 meter) in front of any wall. If the S-150P is placed inside a cabinet, resonances from the cabinet cavities should be eliminated; a combination of front baffling, internal dampening, and perforation of the sides and rear of the cabinetry should reduce the resonance effects.

For additional information regarding speaker placement, see the THX Installation Manual from Lucasfilm THX.

9. Satellite / Subwoofer Phasing Test

In any system using a subwoofer separate from Satellite speakers, a phasing test must be performed to insure good bass blending. This test insures optimum sound in the critical bass frequencies where your Subwoofer and Satellite speakers overlap.

HOME THX AUDIO SYSTEM

For a Home THX Audio system, follow the system instructions provided with the THX controller, as you will need to have correct phase among all the speakers in the system. These instructions will take you through the front channels, surround channels, and subwoofer.

SATELLITE/SUBWOOFER SYSTEM

If you own an M&K THX Powered Subwoofer, see its owner's manual for the correct procedure for matching phase between the Satellites and Subwoofer. Its "SUBWOOFER PHASE" switch makes this important test very easy. If your subwoofer does not have a "SUBWOOFER PHASE" switch, follow this procedure:

Play a familiar CD, LP, or tape with steady, consistent bass content through your system. Listen carefully to the "mid-bass" region of 75 - 125 Hz. This is the part of the spectrum where electric or string basses and drums predominate. Then, reverse the Positive and Negative speaker inputs on the back of BOTH Satellite speakers.

You can do this at the back of both Satellite speakers, or at the Subwoofer's "TO SPEAKERS" terminals, but never at both locations. The lead that was on the Positive (+) terminal should be switched to the Negative (—) terminal, and vice versa.

Now listen to the same musical passage as you did earlier, concentrating on the mid-bass region. If you hear less bass, the original connections were correct. If you hear more bass, the new connections are correct.

You need to perform this test because when Satellite speakers are located separate from a Subwoofer, each speaker is at a different distance from your ear. In some cases, the difference will be just enough so that the output from the Subwoofer arrives out of phase with the output of the Satellites. When this happens, that critical mid-bass is actually cancelled. You should re-do this test any time you move your speakers.

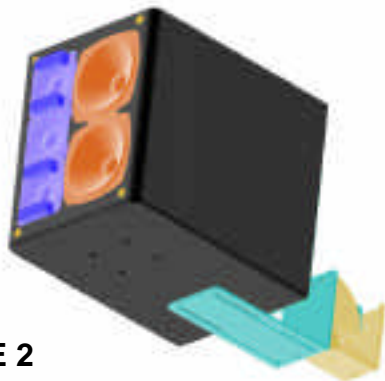


FIGURE 2

M&K ST-Wall Tilt Bracket

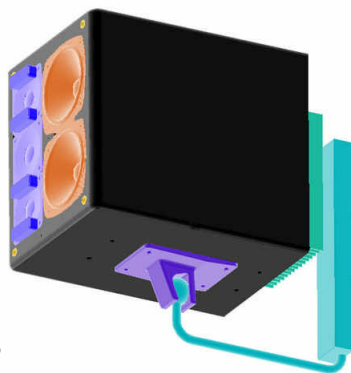


FIGURE 3

Omnimount 100 Series



FIGURE 4

M&K ST-Stand System
(ST-1 Base, ST-Leg, ST-Tilt Bracket, ST-
Uni III Bracket)

If you want to experiment further, you can move the Satellite speakers either towards or away from your listening position, making changes in small increments. This will "focus" the system's sound to its optimum. When you hear the best balance between stereo image localization and maximum impact and output in the mid-bass, you have the ideal location.

10. Speaker Mounting Options

The S-150P has many stand and wall mounting options that make proper placement and installation easy and straightforward. M&K ST series (wall brackets and stands - see FIGURE 2 & 4), are recommended because they are designed to facilitate proper installation. The omnimount 100 Series wall brackets (Figure 3) can also be used. Included with this manual are artist renderings detailing multiple bracket and stand mounting options. For more specific installation instructions please consult the manuals included with the stand and bracket hardware.

11. Speaker Damage and How To Avoid It

An important factor to consider with any loudspeaker system is the potential for speaker damage. Even though your M&K Speakers have extremely high power handling ability (especially for Main speakers), they still can be damaged by relatively low powered amplifiers. While very few M&K Speakers are actually returned for service, the vast majority of those returned are not for manufacturing defects. Instead, they are returned because they have been overdriven, almost always because the amplifier or receiver used was driven into clipping distortion. This damage is considered abuse, and is not necessarily covered under warranty.

This clipping distortion occurs when the demands of the music are greater than the amplifier's available power. It can occur at 20 watts with a small amplifier, or at 400 watts with a large amplifier. When this happens, the amplifier's output waveform (which should look like a smooth arc) is "clipped" off, exhibiting a flat top instead of the arc.

This "clipped" waveform contains multiples of the original amplified frequencies, sometimes at higher levels than the original signal itself. For tweeters, this can be very damaging, as this distortion is well above the audible range (where you are unable to hear it), and where the tweeter is most vulnerable to damage.

When an amplifier "clips", it generates a high level of high frequency energy (much higher than normal program material) which passes through the crossover to the tweeter. This energy can overheat the tweeter in a matter of seconds and destroy it. When this happens, the sound becomes harsh and grating, and a break-up is often audible in the bass frequencies. It will become uncomfortable to listen to, especially when compared to a slightly lower volume level. When you are listening at high volume levels, be aware of the onset of clipping distortion, and turn the volume down slightly if the sound takes on the character described above.

When tone controls or equalizers are used to boost frequencies, the problem occurs much more rapidly. Even a small boost of low or high frequencies can easily double the power requirement and lead to amplifier clipping at moderate levels. Therefore, you should use your tone controls judiciously, avoiding extreme boosts of the bass and treble controls, especially when you are listening at high volume levels.

The best way to avoid speaker damage is to use common sense. Use moderate boosts of tone controls or equalizers, at the very most. Listen carefully for any harshness and break-up, especially at high volume levels, and turn down the volume when needed. If you cannot get enough volume, you may need to consider a higher-powered amplifier. If you have any questions about this, please contact M&K, and we will be happy to discuss it with you further.

12. If You Need Service

Contact your dealer or M&K with a complete description of the problem. Please have the unit's model and serial numbers (found on the back of the cabinet), date of purchase, and your dealer's name. You can call M&K between 8:30 AM and 5:00 PM Pacific Time, Monday through Friday, at (818) 701-7010. If you call outside these hours, leave a message, and we will return your call promptly or you may send us an e-mail to service@mksound.com.

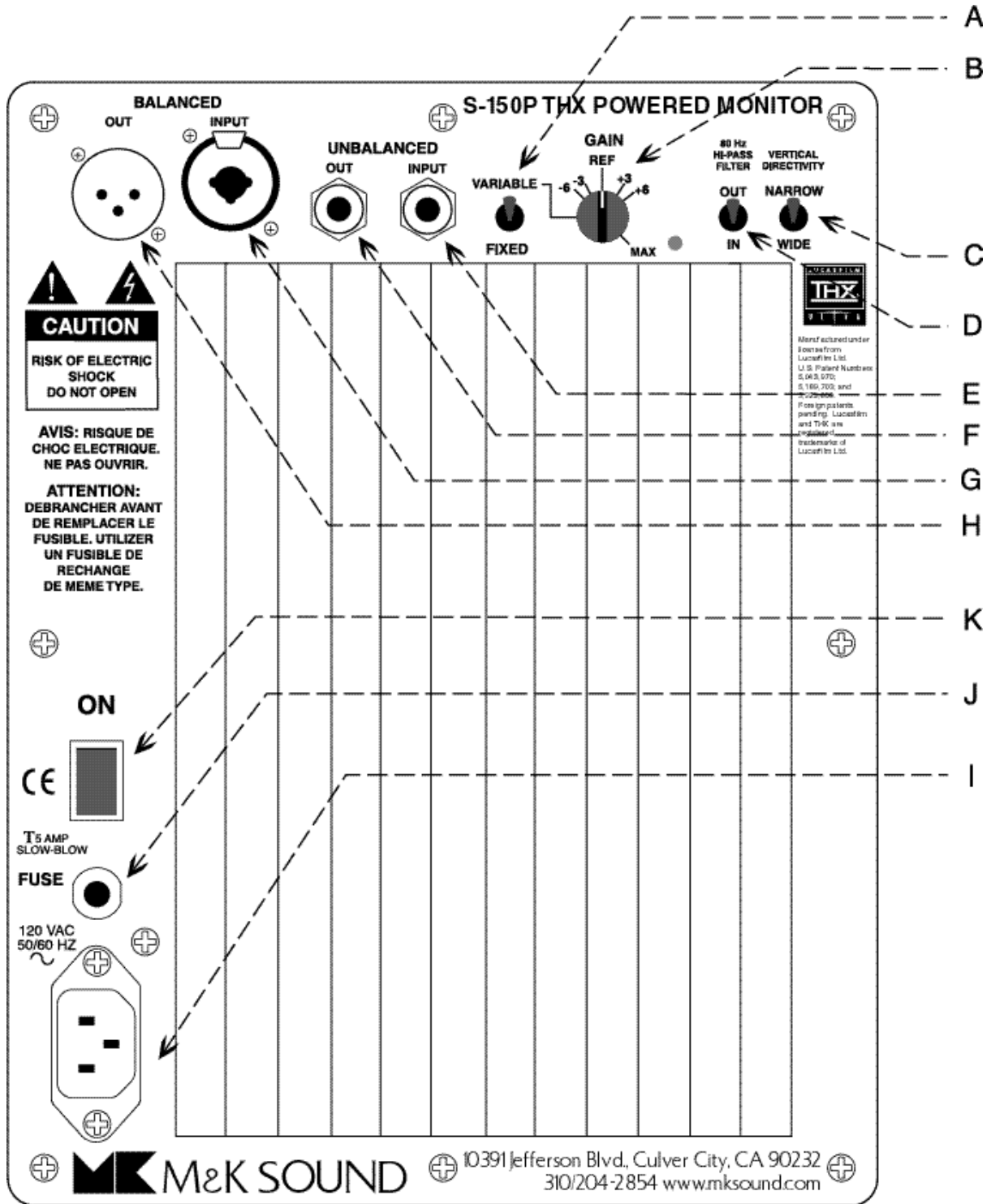
DO NOT RETURN YOUR SPEAKERS TO THE FACTORY FOR SERVICE WITHOUT OBTAINING PRIOR AUTHORIZATION

All M&K Satellite speakers carry a ten year limited parts and labor warranty on the speaker drivers and five year limited warranty on the power amplifier. This warranty is transferable to new owners from the date of original purchase. It does not cover abuse, misuse, repairs by unauthorized service stations, speakers without M&K serial numbers, speakers not sold by authorized M&K dealers, and those damaged in shipping or by accident. If you have any questions about the warranty, please contact M&K.

13. Cabinet Maintenance

Treat the cabinet as you would any piece of fine furniture. Its black vinyl finish does not require any special maintenance; regular dusting with a lint-free cloth and periodic cleaning is all that is required. Do not use any solvent based cleaners, as they may damage the cabinet surface.

FIGURE 5



14. Inputs & Controls

(see Figure 5)

- A) **Input Gain Switch** - Fixed is equal to maximum input gain on the variable gain knob. 200mv delivered to the balanced input stage delivers 90dB of acoustic output at one meter.
- B) **Variable Input Gain Switch** - Offers variable gain from - to maximum gain, which is equal to having the gain switch set to the reference position. Reference denotes the position that should be used when operating this monitor with +4dBu input signal.
- C) **Narrow/Wide Switch** - See section 6 - Narrow/Wide Mode
- D) **80 Hz High-Pass Filter In / Out** - When this switch is in the IN position, an 12dB per octave 80 Hz High-Pass Filter is placed in line on the input stage of the monitor. This switch should be in the OUT position when used with any bass-management controller, such as an LFE-3, 4 or 5, or any other [consumer] processor that has internal 80 Hz High-Pass filters.
- E) **Unbalanced Input** - this RCA type input terminal is connected in series with the Unbalanced Output.
- F) **Unbalanced Output** - this RCA type output terminal is connected in series with the Unbalanced Input.
- G) **Neutrik Balanced Input** - this input terminal is connected in series with the Balanced Output and features both XLR and Phone connections. Pin 2 is hot.
- H) **Neutrik Balanced Output** - this output terminal is connected in series with the Balanced Input and uses a standard XLR connection. Pin 2 is hot.
- I) **Standard IEC Power Cord Receptacle**
- J) **Fuse holder** - 5 Amp Slow-blow type fuse
- K) **Power Switch**

15. S-150P Specification

Input Impedance 60K ohms balanced	15K ohms unbalanced
Max Input Sensitivity	Unbalanced 100mv =90 dB SPL @ 1 meter Balanced 200mv = 90 dB SPL @ 1 meter
Max Output Level	112 dB @ 1 meter
Maximum input Input	+24 dBu Balanced
Frequency Response	300Hz to 12kHz \pm 1 dB 80Hz to 20kHz \pm 3 dB
Type	Sealed box
Crossover frequency	1.2kHz
80 Hz filter Type	Butterworth Q= 0.707
80 Hz filter slope	12 dB /octave

Power amplifiers

Type	Symmetrically balanced discrete bipolar
Channels	2 (bi-amplified)
Power output midrange amplifier	150 watts into 4 ohms @ 0.004% THD @ 100 hz
Power output tweeter amplifier	150 watts into 4 ohms @ 0.01% THD @ 3 kHz
Dimensions	12.5" H x 10.5" W x 16.13" D (with heat sink)

